Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-09

Union Pacific Railroad Company (UP)
Carroll, IA
January 15, 2008

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2008-9

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0108CB010
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident No.: N/A
3.Name of Railroad Operating Train #3: N/A	3a. Alphabetic Code: N/A	3b. Railroad Accident/Incident No.: N/A
4.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	4a. Alphabetic Code: UP	4b. Railroad Accident/Incident No.: 0108CB010
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 01 | Day 15 | Year 2008	7. Time of Accident/Incident: 06:01: ☑ AM ☐ PM

8. Type of Accident/Indicent *(single entry in code box)*: 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other *(describe in narrative)* — Code: 01

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
0	N/A	N/A	0	Council Bluffs

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Carroll	255.5	N/A	IA	CARROLL

18. Temperature (F) *(specify if minus)*	19. Visibility *(single entry)* 1. Dawn 2. Day 3.Dusk 4.Dark — Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow — Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry — Code
25 F	1	1	1

22. Track Name/Number	23. FRA Track Class (1-9, X) — Code	24. Annual Track Density *(gross tons in millions)*	25. Time Table Direction 1. North 2. South 3. East 4. West — Code
Track No 2	5	133.6	3

OPERATING TRAIN #1

26. Type of Equipment Consist *(single entry)* 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car — A. Spec. MoW Equip. Code	27. Was Equipment Attended? 1. Yes 2. No — Code	28. Train Number/Symbol
1	1	CATKI13

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
48 MPH | R	a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other *(Specify in narrative)*	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter
30. Trailing Tons *(gross tonnage, excluding power units)*: 19305	Code(s): b | e | i | N/A | N/A	0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	EXEX5282	95	yes
(2) Causing *(if mechanical cause reported)*	0	0	N/A

33. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
0	0

34. Was this consist transporting passengers? (Y/N): N

35. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	2	0	0	0	1
(2) Total Derailed	0	0	0	0	0

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	135	0	0	0	0
(2) Total Derailed	33	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$2,043,653.00	$124,365.00	M507	N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 6 Mi 8	Hrs 6 Mi 8

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	0	0	0

50. EOT Device? 1. Yes 2. No	51. Was EOT Device Properly Armed? 1. Yes 2. No
1	1

52. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #2

53. Type of Equipment Consist *(single entry)* 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car — A. Spec. MoW Equip. Code	54. Was Equipment Attended? 1. Yes 2. No — Code	55. Train Number/Symbol
N/A	N/A	N/A

56. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	58. Method(s) of Operation *(enter code(s) that apply)*	58a. Remotely Controlled Locomotive?
N/A MPH | N/A	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	0 = Not a remotely controlled; 1 = Remote control portable

57. Trailing Tons *(gross tonnage, excluding power units)* N/A

c. Auto train stop
d. Cab
e. Traffic
f. Interlocking
i. Time table/train orders
j.Track warrant control
k. Direct traffic control
l.Yard limits
o. Positive train control
p. Other *(Specify in narrative)*
Code(s) N/A N/A N/A N/A N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter N/A

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	N/A

60. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

61. Was this consist transporting passengers? (Y/N) N/A

62. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

64. Equipment Damage This Consist N/A

65. Track, Signal, Way, & Structure Damage N/A

66. Primary Cause Code N/A

67. Contributing Cause Code N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

72. Engineer/Operator Hrs N/A Mi N/A

73. Conductor Hrs N/A Mi N/A

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

77. EOT Device? 1. Yes 2. No N/A

78. Was EOT Device Properly Armed? 1. Yes 2. No N/A

79. Caboose Occupied by Crew? 1. Yes 2. No N/A

OPERATING TRAIN #3

80. Type of Equipment Consist *(single entry)*
1. Freight train
2. Passenger train
3. Commuter train
4. Work train
5. Single car
6. Cut of cars
7. Yard/switching
8. Light loco(s).
9. Maint./inspect.car
A. Spec. MoW Equip.
Code N/A

81. Was Equipment Attended? 1. Yes 2. No Code N/A

82. Train Number/Symbol N/A

83. Speed *(recorded speed, if available)* Code
R - Recorded
E - Estimated N/A MPH N/A

84. Trailing Tons *(gross tonnage, excluding power units)* N/A

85. Method(s) of Operation *(enter code(s) that apply)*
a. ATCS
b. Auto train control
c. Auto train stop
d. Cab
e. Traffic
f. Interlocking
g. Automatic block
h. Current of traffic
i. Time table/train orders
j.Track warrant control
k. Direct traffic control
l.Yard limits
m.Special instructions
n. Other than main track
o. Positive train control
p. Other *(Specify in narrative)*
Code(s) N/A N/A N/A N/A N/A

85a. Remotely Controlled Locomotive?
0 = Not a remotely controlled
1 = Remote control portable
2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter N/A

86. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	N/A

87. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

88. Was this consist transporting passengers? (Y/N) N/A

89. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

91. Equipment Damage This Consist N/A

92. Track, Signal, Way, & Structure Damage N/A

93. Primary Cause Code N/A

94. Contributing Cause Code N/A

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator Hrs N/A Mi N/A

100. Conductor Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

104. EOT 1. Yes 2. No N/A

105. Was EOT Device Properly 1. Yes 2. No N/A

106. Caboose Occupied by Crew? 1. Yes 2. No N/A

Highway User Involved

107. Code N/A
A. Auto
B. Truck
C. Truck-Trailer.
D. Pick-Up Truck
E. Van
F. Bus
G. School Bus
H. Motorcycle
J. Other Motor Vehicle
K. Pedestrian
M. Other *(spec. in narrative)*

108. Vehicle Speed *(est. MPH at impact)* N/A

109. *geographical)* Code N/A
1.North 2.South 3.East 4.West

Rail Equipment Involved

111. Equipment Code N/A
1.Train *(units pulling)*
2.Train *(units pushing)*
3.Train *(standing)*
4.Car(s) *(moving)*
5.Car(s) *(standing)*
6.Light Loco(s) *(moving)*
7.Light(s) *(standing)*
8.Other *(specify in narrative)*

112. Position of Car Unit in N/A

110. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A

113. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	N/A

114a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

114b. Was there a hazardous materials release	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

114c. State here the name and quantity of the hazardous materials released, if any.
N/A

115. Type Crossing Warning	1.Gates	4.Wig Wags	7.Crossbucks	10.Flagged by crew
	2.Cantilever FLS	5.Hwy. traffic signals	8.Stop signs	11.Other *(spec. in narr.)*
	3.Standard FLS	6.Audible	9.Watchman	12.None

Code(s)							
	N/A	N/A	N/A	N/A	N/A	N/A	N/A

116. Signaled Crossing *(See instructions for codes)*	Code
	N/A

117. Whistle	Code
1. Yes 2. No 3. Unknown	N/A

118. Location of Warning	Code
1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	N/A

119. Crossing Warning with Highway Signals	Code
1. Yes 2. No 3. Unknown	N/A

120. Crossing Illuminated by Street Lights or Special Lights	Code
1. Yes 2. No 3. Unknown	N/A

121. Age	122. Driver's Gender	Code
N/A	1. Male 2. Female	N/A

123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train	Code
1. Yes 2. No 3. Unknown	N/A

124. Driver	Code
1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*	N/A

125. Driver Passed Highway Vehicle	Code
1. Yes 2. No 3. Unknown	N/A

126. View of Track Obscured by *(primary obstruction)*	Code
1. Permanent Structure 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other *(specify in narrative)* 8. Not obstructed	N/A

Casualties to:	Killed	Injured
129. Highway-Rail Crossing Users	N/A	N/A

127. Driver	Code
1. Killed 2.Injured 3. Uninjured	N/A

128. Was Driver in the Vehicle?	Code
1. Yes 2. No	N/A

130. Highway Vehicle Property Damage *(est. dollar damage)*
N/A

131. Total Number of Highway-Rail Crossing Users *(include driver)*
N/A

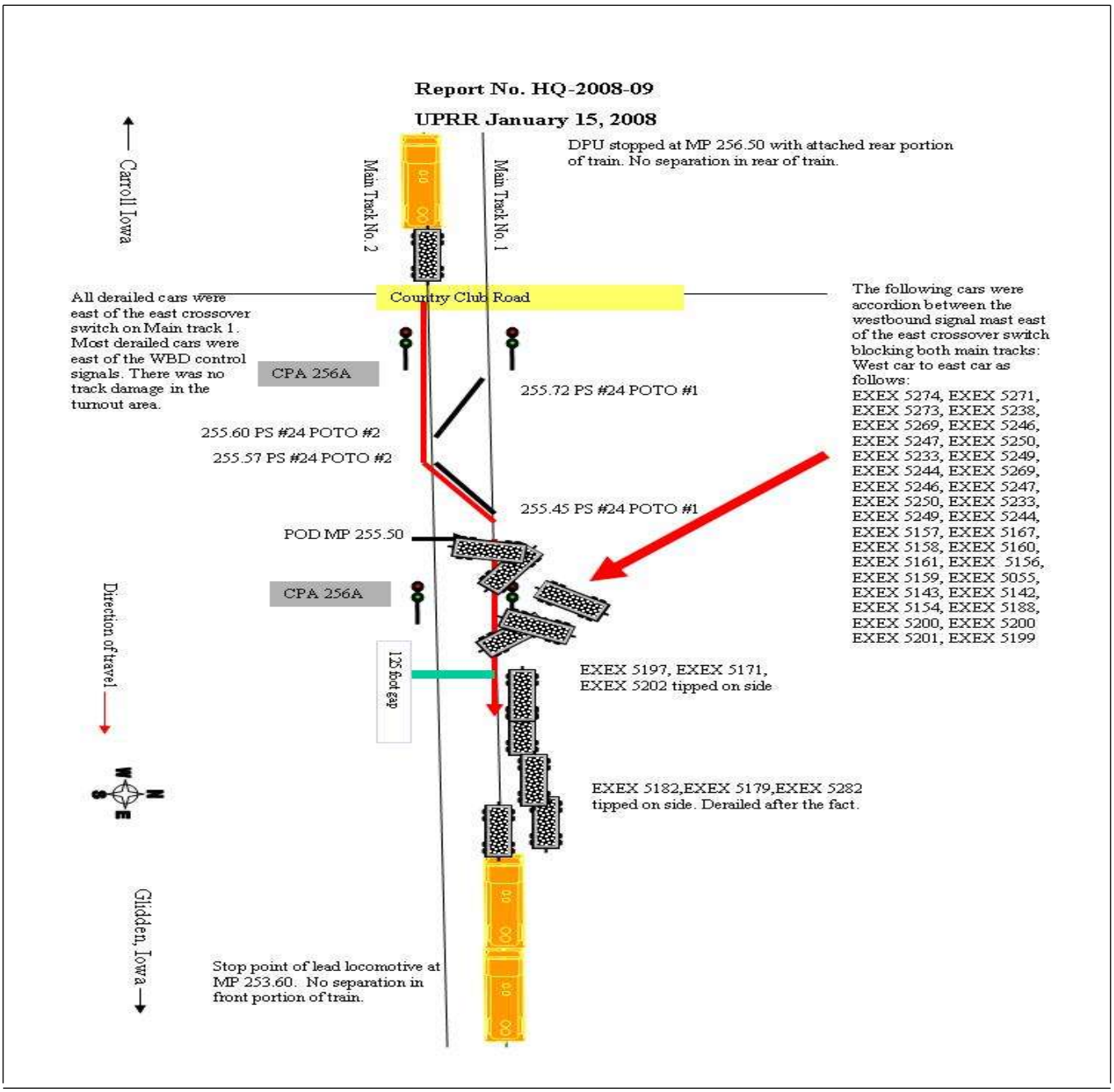
132. Locomotive Auxiliary Lights?	Code
1. Yes 2. No	N/A

133. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	N/A

134. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	N/A

135. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	N/A

136. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.



137. SYNOPSIS OF THE ACCIDENT

On January 15, 2008, at approximately 6:01 a.m., CST, eastbound Union Pacific Railroad Company (UP) Unit Coal Train CATKI-13, derailed 33 loaded coal hopper cars (lines 95 through 127) at milepost (MP) 255.5 while crossing over from Main Track No. 2 to Main Track No. 1. The maximum turnout speed is 50 mph. Both main tracks were blocked as a result of the derailment. The derailment occurred approximately 3.4 miles east of Carroll, Iowa. There were no injuries to the crew members or hazardous materials release. The damages to equipment were $2,043,653. The damages to track were $124,365. There was no signal damage. The damage total equals $2,168,018.

At the time of the derailment it was clear and dark. The temperature was 25 °F.

Suspect rail and car components recovered from the derailment were sent to Rail Sciences Laboratory in Omaha, Nebraska for analysis. The lab findings determined that the rail and car components analyzed were not causative to the derailment. The railroad has entered T299 -other rail and joint bar defects. The Federal Railroad Administration (FRA) has determined the cause to be M507-Investigation complete, cause could not be determined.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crewmembers of UP Train CATKI-13 consisted of a locomotive engineer and a conductor. The crew went on duty at their away-from-home terminal at Fremont, Nebraska on January 15, 2008 at 1:15 a.m. after receiving more than the required statutory off-duty rest period.

The assigned freight train consisted of two locomotives on the head end of the train and one Distributive Power Unit (DPU) operating on the rear of the train, 135 loaded coal hopper cars. The train was 7,512 feet long and weighed 19,305 tons. The train was scheduled to travel from Fremont, Nebraska to Boone, Iowa, where another crew change would occur. The train had received an initial terminal freight train air brake inspection and a Class 1-A 1,000 mile brake test and inspection at South Morrill, Nebraska, on January 14, 2008, at approximately 8:30 a.m. No exceptions were taken to the brake functionality. The engineer completed the daily inspection of the head-end locomotives and the conductor, a set-back engineer, was transported to the rear of the train to complete the daily inspection on the DPU before departing Fremont. The train departed at 1:50 a.m, with no assigned work en route.

UP Unit Coal Train CATKI-13 was operating in Traffic Control System / Two Main Tracks / and Automatic Train Control (TCS/2MT/ATC) signaled territory, on tangent track. The maximum authorized speed for freight trains is 70 mph, freight trains with 100 tons per operative brake are restricted to 60 mph, as designated in the current UP Timetable No. 3 effective Monday, December 17, 2007. The train was being operated at 48 mph approaching the accident area. The accident area has No. 24 turnouts which require speed to be reduced to 50 mph. At the time the accident occurred, the train was being operated at 48 mph as recorded by the event recorder of the controlling locomotive. The train was traveling timetable direction east on Main Track No. 2.

At MP 257.6, the train received a reading from the track side HotBox / Dragging Equipment Detector (HBD) indicating no defects.

The engineer was seated on the south (right) side of the locomotive, operating the train with the throttle in the

idle position, with no brakes applied. The conductor was seated on the north (left) side of the locomotive.

In this area of the railroad there is 141-lb Continuous-Welded Rail (CWR) set on concrete ties. When traveling from west to east, it is a descending 0.9-percent grade. At the accident site, the grade is river grade which is practically level. The two switches located at MPs 255.57 and 255.45 are power-operated switches with No. 24 power-operated turnouts equipped with a moveable point frog.

THE ACCIDENT

At Control Point (CP) A256, the train began diverging through the crossover from Main Track No. 2 to Main Track No. 1. The switch turnout speed is 50 mph as indicated by the current UP Iowa Timetable No. 3. The train was traveling at a recorded speed of 48 mph as indicated by the locomotive event recorder with the throttle in the idle position.

As the train was making the crossover movement, the crew felt a jolt. The train went into an undesired emergency application of the train air brake system. The controlling locomotive was at MP 254.7 at that time. After the emergency air brake application, the lead locomotive and trailing unit, along with the head 94 cars, continued to travel east on the rail before coming to a complete stop at MP 254.7. Thirty-three loads, the 95th through 127th cars, had derailed at MP 255.5 east of the east switch in the crossover.

ANALYSIS AND CONCLUSIONS

ANALYSIS: - TOXICOLOGY TEST RESULTS:

The crewmembers were tested under FRA post-accident testing guidelines.

CONCLUSIONS:

The post-accident forensic toxicology results received from the FRA Alcohol and Drug Control Program manager indicate the two employees tested with negative test results.

ANALYSIS: - FATIGUE

FRA obtained fatigue related information, for the 10-day period preceding this incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

CONCLUSIONS:

Upon analysis of that information FRA concluded that one or more of the employees may have been working at a diminished level of safety (effectiveness) due to mental and/or physical attributes associated with fatigue; however this condition would not have contributed to the cause of the accident.

ANALYSIS: - LOCOMOTIVE ENGINEER PERFORMANCE:

The locomotive engineer had received 56 operational tests between April 10 and December 18, 2007, with zero failures noted.

The locomotives were equipped with speed and event recorders as required. The relevant event recorder data was downloaded by the UP Road Foreman at the accident site. The event recorder indicated the locomotive engineer was operating the throttle in idle position at the time of the derailment. The recorded speed was consistent with Timetable Special Instructions requirements for CP A256, which requires a 50 mph speed through the turnouts. The event recorder indicates a recorded speed of 48 mph.

CONCLUSIONS:

The locomotive engineer was in full compliance with carrier operating rules and applicable Federal standards prior to and at the time of the derailment.

ANALYSIS: - SIGNAL:

UP recorded TCS dispatcher records were examined. Recorded data from the track side HBD located at MP 257.4, less than 2 miles prior to the accident site, indicated no defects or dragging equipment. The conductor's report indicates a "no defects" reading from the detector.

CONCLUSIONS:

The TCS dispatcher records indicated nothing out of the ordinary prior to the incident. The TCS records indicate out of correspondence post-derailment. No signal trouble tickets had been generated at this location in the last 30 days prior to the accident. The data download from the HBD indicated no dragging equipment or hot boxes in the train. Signal appliances were not a causal factor to the derailment

ANALYSIS: - TRACK:

An FRA track inspection report for the 80 days prior to the incident period shows that on October 24, 2007, fouled ballast defect was noted just west of the point of derailment (POD). A 25 mph slow order was placed on the track until remedial action was taken and the repairs were made. Remedial action was the repair of the track.

A UP geometry car report, run on September 29, 2007, noted one defect located at the derailment site, which was not out of compliance with FRA Standards. Track inspection records were examined for a 10-mile segment of track between MPs' 253.50 and 257.50 dated December 15, 2007, through January 15, 2008.

An FRA Track Inspector took post-accident track measurements leading up to the POD. An interview was conducted with the UP track inspector. The track inspection records for 30-days prior to the accident were reviewed. No defects were noted in this area and all records were found to be in compliance with Federal Regulations. The last hi-rail track inspection over the accident site had been conducted on January 14, 2008. Control points similar to the one involved in the accident were inspected to determine if there were any characteristics such as welds and/or joint bar locations which would indicate an abnormality in the configuration at the accident site; none were detected. There was an absence of marks on the wheels of freight cars and an absence of gouge marks on the rail.

Post-accident measurements taken by the UP were reviewed. Stationing occurred at the required intervals. String lining measurements were taken. The post-accident measurements indicate that the railroad was in full compliance with their own and applicable Federal Standards. Rail recovered from the site was sent to Rail Sciences Laboratory in Omaha, Nebraska.

CONCLUSIONS:

Rail Sciences Laboratory concluded that all rail received was non-causative to the derailment. All fractures detected were a result of stress overload during the derailment. Not all rail components were recovered from the derailment site.

ANALYSIS: - EQUIPMENT:

All wheel sets and rail car components suspected were sent to Rail Sciences Laboratory. All car components were accounted for on the portion of the train that derailed. No exception was noted for locomotive equipment performance.

CONCLUSIONS:

Rail Sciences Labratory determined that all wheel sets and rail car component damages were non-causative to the derailment. Locomotive event recorder downloads from all locomotives in the consist were reviewed for equipment performance and determined to be in full compliance.

OVERALL CONCLUSIONS:

The railroad was in full compliance with their own and all applicable Federal standards. The train crewmembers were in compliance with carrier operating rules and Federal Regulations, ruling out train

handling as a probable cause. Signal appliances were in compliance with carrier operating rules and Federal Standards.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

The derailment cause, based on the evidence collected and analyzed, suggests that the UP primary cause code of T299 - other rail or joint bar defects, is inconclusive. Based on the evidence collected and analyzed, the FRA finds there is no clear indication as to what may have been the probable cause of the derailment.

The FRA track inspector's initial inspection at the scene of the derailment and the catastrophic nature of how the derailed cars laid indicated that the cause was sudden and severe. It was determined that the suspected Point of Derailment (POD) was under the massive pile of cars, and somewhere within the first 100 feet ahead of the trailing point crossover movement through the turnout. There were no marks leading up to the derailment to indicate wheels or dragging equipment as verified by the UP's findings. The FRA track inspector participated in the post-derailment track measurements and found them to be within the FRA requirements for the track classification. The three most eastward cars in the derailment were pulled off the track and were not actually part of the initial derailment. The wheels were inspected and there was no indication that they may have struck something blunt prior to the derailment, such as a broken rail or joint, nor were there any visual markings on the wheels to suggest such. No marks on the prior wheels passing over the suspected POD is a very strong indication that a broken rail or joint bars is not responsible for this derailment. It is unlikely that track constructed with this size of rail on concrete ties would have a rail or joint fail and derail the very first wheel.

The FRA has determined the primary cause to be M 507- investigation complete, cause could not be determined. The FRA does not see anything in the evidence collected that clearly indicates any other probable cause or contributing factors.